

103.3.1 Chronic Toxicity

Data Review Number: ES V1

Test: Avian Reproduction Upland Game Bird

Species: Bobwhite Quail (Colinus virginianus)

Results: Technical Muscamone was fed to mature bobwhite quail at dietary concentrations of 2 ppm and 20 ppm throughout a One-Generation Reproduction Study and had no effect on reproductive success.

Based on the results of this study, environmental levels of up to 20 ppm of technical Muscamone do not present a reproductive hazard to bobwhite quail.

Chemical: Technical Muscamone

Title: One-Generation Reproduction Study - Bobwhite Quail
Technical Muscamone

Accession No.: 229393

Study Date: April 10, 1974

Researcher: Truslow Farms, Incorporated

Registrant: Thuron Industries, Inc.

Validation Category: Supplemental

Category Repairability: Yes to core. The registrant needs to provide to the Environmental Safety Section raw avian reproduction data/pen/weekly interval of egg set so that the section can compare the statistical analysis for data validation. All of the other methods and animal husbandry protocols appear to follow accepted procedures.



2033019

ADDITIONAL INFORMATION:

Reproductive Data - Bobwhite Quail	Controls	Technical Muscamone (ppm)	
		2	20
Eggs Laid	760 ⁶¹	647	835
Eggs Cracked	10 ⁶⁰⁹	8	13
Eggs Set*	699	582 ⁹⁰	775
Viable Embryos	576	511	564
Live Three-Week Embryos	572	504	561
Normal Hatchlings	523	452	484 ?
Fourteen-Day-Old Survivors	401	348	334 ?

788
looks significant
Need Raw data per pen

*Excludes those cracked and those removed for eggshell thickness analysis. The above differences were not statistically significant ($p < 0.05$).

	Expected Values	Controls	Technical Muscamone (ppm)	
			2	20
Eggs Laid Per Hen in Eight Weeks	28 - 38	31.7	27.0	34.8
Eggs Cracked of Eggs Laid (%)	0.6 - 2.0%	1.3	1.2	1.6
Viable Embryos of Eggs Set (%)	75 - 90%	82	88	73
Live Three-Week Embryos of Viable Eggs (%)	97 - 99%	99	99	99
Normal Hatchlings Of Live Three-Week Embryos (%)	70 - 90%	91	90	86
Fourteen-Day Survivors of Normal Hatchlings (%)	75 - 90%	77	77	69
Fourteen-Day Survivors Per Hen	11 - 14	16.7	14.5	13.9

The above differences were not statistically significant ($p < 0.05$).

Eggshell Thickness - Bobwhite Quail	Controls	Technical Muscamone (ppm)	
		2	20
No. of Eggs Analyzed	⁵¹ 48	⁵⁷ 48	⁴⁷ 48
Mean Shell Thickness (mm)	0.207	0.205	0.205

The above differences were not statistically significant ($p < 0.05$).

Bobwhite Quail
Egg laid
Z-9-Tricresene
Wildlife Int.
NOT Sign

45.
81.
48.
56.
44.
63.
99.
60.
88.
71.
80.
25.

control

63.33333333
417.3888889

91.
52.
47.
58.
70.
33.
37.
46.
55.
90.
42.
26.

2 ppm

53.91666667
392.7430556

80.
50.
64.
42.
106.
61.
68.
52.
83.
92.
50.
86.

20 ppm

69.58333333
360.7430556

1.752956597 < 3.3
2.
33.

14050.5
1492.722222
15543.22222

Bobwhite
Z-9-Tricresene
Wildlife Int.
NOT Sign

Egg Set

41.
75.
43.
52.
40.
58.
95.
55.
83.
64.
71.
22.

control

58.25
388.8541667

85.
47.
43.
54.
66.
30.
34.
41.
50.
71.
38.
23.

2 ppm

48.5
298.25

76.
52.
59.
38.
101.
57.
61.
41.
78.
87.
47.
78.

20 ppm

64.58333333
345.9097222

2.096931847 < 3.3
2.
33.

12396.16667
1575.388889
12971.55556

Bobwhite
Z-9-Tricresene
Wildlife Int
Viable embryos
NOT Sign

39.
57.
39.
26.
26.
54.
81.
43.
80.
58.
59.
14.

control

48.
396.8333333

70.
41.
37.
46.
60.
26.
30.
36.
42.
65.
34.
22.

2 ppm

42.58333333
216.2430556

19.
52.
35.
26.
93.
0.
49.
35.
74.
82.
41.
58.

20 ppm

47.
664.8333333

.2145376262 < 3.3
2.
33.

15334.91667
199.3888889
15534.30556

Bobwhite

Z-9-Tricosene

Wildlife Int

Five Three Week
embryos

NOT Sign

39.
57.
39.
25.
26.
54.
80.
42.
80.
56.
58.
14.

Control

47.66666667
394.2222222

69.
40.
37.
46.
60.
26.
26.
36.
41.
65.
34.
22.

2.0 ppm

42.
215.

19.
52.
35.
26.
92.
0.
48.
35.
74.
82.
41.
57.

20 ppm

46.75
655.1875

.2414774131 < 3.3

2.
33.

15172.91667
222.0555555
15394.97222

Bobwhite

Normal + siblings

Z-9-Tricosene

Wildlife Int

NOT Sign

33.
51.
35.
26.
26.
45.
68.
40.
77.
54.
54.
14.

Control

43.58333333
306.5763889

63.
45.
32.
44.
52.
26.
20.
33.
39.
54.
26.
16.

2.0 ppm

37.66666667
189.5555556

17.
45.
33.
19.
82.
0.
26.
31.
72.
68.
37.
51.

20 ppm

40.33333333
558.8888889

0.274632544 < 3.3

2.
33.

12660.25
210.7222221
12870.97222

Bobwhite

14 day survivors

Z-9-Tricosene

Wildlife

Int.

NOT Sign

Control

17.
47.
34.
54.
83.
96.
53.
77.

50.125
424.109375

4.
3.
23.
38.
60.
62.
74.
84.

2.0 ppm

43.5
854.5

17.
26.
22.
58.
68.
49.
30.
70.

20 ppm

41.75
364.1875

.2494697496 < 3.3

2.
21.

13142.375
312.25
13454.625